

REMARKS

In the present Amendment, independent claim 1 has been amended to incorporate the recitation of claim 5, and claim 5 has been canceled, accordingly. Thus, claim 1 now recites that the positive working resist composition further includes (D) a compound capable of generating a carboxylic acid upon irradiation with active rays or radiation.

Three new dependent claims, that is, claims 9, 10 and 11, have been added. These claims recite preferred weight ratios of the compound (D) capable of generating a carboxylic acid upon irradiation to the compound (B) capable of generating a sulfonic acid upon irradiation. Section 112 support for the new claims may be found, for example, at page 53, second paragraph of the specification.

Upon entry of the amendments, which is respectfully requested, claims 1-4 and 6-11 will be pending.

In the "Attachments" section at the bottom of the Office Action Summary, the Examiner has checked the box indicating that a Draftsperson's Patent Drawing Review is attached to the Action. This appears to be an error. Applicants believe the Examiner meant to check box 3, indicating that a Form PTO/SB/08 is attached to the Action.

In Paragraph No. I of the Action, the Examiner confirms Applicants' election and states that "the elected resins and monomer have been considered and searched." Per the Examiner, the consideration and search have been extended to "the applied species" and "others have not been considered, searched or examined until all of the elected and applied species are overcome."

There is one error in the Examiner's restatement of Applicants' election. That is, the Examiner states that as a species of the structures represented by formula (4), Applicants elected "a part in resin A1-33." Actually, Applicants elected a structure, shown at page 23 of the specification and at page 2 of Applicants' Response to the Restriction Requirement, which is contained in resin A1-32, not resin A1-33 as indicated by the Examiner.

In Paragraph No. III of the Action, claims 1-4 and 6-8 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Uenishi et al (6,489,080).

Applicants submit that this rejection should be withdrawn because Uenishi et al '080 does not disclose or render obvious the positive working resist composition of the present claims.

As an initial matter, the Examiner is correct that the Uenishi et al resins cited at page 3, line 2 of the Office Action satisfy the requirements of present resin A1, with the exception of Uenishi et al resin c-36. As to Uenishi et al resin c-36, the Examiner's position appears to be that the -cyclohexyl-C(CH₃)₂-cyclohexyl- group in the large repeating unit in the middle of column 43 of Uenishi et al corresponds to Z in formula (1) in present claim 1. Applicants disagree. Uenishi et al resin c-36 does not satisfy the requirements of present resin A1.

As to resin A2 of present claim 3, Applicants respectfully note that the Examiner's analysis is not entirely accurate. Of the Uenishi et al resins cited at page 3, lines 3-4 of the Action as purportedly being within the scope of resin A2 of the present application, only resins c-4, c-15, c-22, c-33, c-34, c-35, c-36 and c-37 are within the scope of resin A2 of the present application. A comparison of formula (3) in present claim 3 with the other Uenishi et al resins

cited by the Examiner, shows that these resins are not within the scope of resin A2 of present claim 3.

In the present Amendment, the recitation of claim 5 has been incorporated into independent claim 1. Claim 5 was not subject to the present rejection. Uenishi et al '080 does not disclose or suggest a positive working resist composition comprising (A1), a resin containing a repeating unit represented by formula (1) shown in present claim 1 and a repeating unit represented by formula (2) shown in present claim 1, (B) a compound capable of generating a sulfonic acid upon irradiation in an amount of from 5 to 20% by weight based on the total solids content of the resist composition, and (D) a compound capable of generating a carboxylic acid upon irradiation. For at least these reasons, Uenishi et al '080 does not disclose or render obvious the positive working resist composition of the present invention.

Even if a prima facie case of obviousness of present claims 1-4 and 6-8 could be established based on Uenishi et al '080, which it cannot, Applicants submit herewith a Declaration under 37 C.F.R. § 1.132 of the first-named inventor of the present application, Mr. Shoichiro Yasunami. Mr. Yasunami's Declaration provides evidence of unexpectedly superior results in comparison to Uenishi et al '080 and supports the patentability of the present invention.

As explained in Mr. Yasunami's Declaration, a positive working resist composition was prepared and coated, and patterns were formed and evaluated in the same manner as in Example 1 of the present application, with the following exceptions. That is, the resist compositions in the Declaration employed resin A, sulfonic acid generator (PAG-A), carboxylic acid generator (D-1) and nitrogen-containing basic compound (E-1) as shown in Table A at page 3 of Mr. Yasunami's

Declaration. As he explains, resin A and sulfonic acid generator PAG-A are resin c-28 and acid generator (II-4) used in Example 6 of Uenishi et al '080, respectively.

The resist compositions and the evaluation results are shown in Tables A and B at page 3 of the Declaration, respectively. Referring to the "Remarks" column, which is the right-hand column of Table A, the Examiner will kindly note that the example numbers given there do not correspond to the working examples in the present specification. These are merely intended to make clear that the first two examples in the Declaration are comparisons, and that the second two examples in the Declaration are embodiments of the present invention.

The results in Table B show that the resist compositions of the present invention (that is, the last two examples in Table B) using a carboxylic acid generator together with 7 wt% or more of a sulfonic acid generator provided superior results in comparison to the comparative examples corresponding to Uenishi et al, which are the first two examples in Table B. The embodiments of the present invention had higher sensitivity (5.5 and 4.0 versus 8.0 and 8.5 for the comparisons, respectively); higher resolution (0.09 and 0.09 microns versus 0.15 and 0.10 microns, respectively), a better pattern shape (rectangular patterns versus a tapered pattern and a slightly tapered pattern for the comparisons, respectively); and improved line edge roughness (5.2 and 4.6 nanometers versus 12.0 and 6.5 nanometers for the comparisons, respectively). There is nothing in the art which would have led a person of ordinary skill to expect the superior results obtained with the positive working resist composition of the present invention.

In view of the above, reconsideration and withdrawal of the rejection of claims 1-4 and 6-8 based on Uenishi et al '080 are respectfully requested.

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In Paragraph No. IV of the Action, claims 1-8 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Uenishi et al '080 considered in view of Ishihara et al (2004/0033434).

While the rejection is applied to claims 1-8, it appears to be directed primarily at present claim 5.

Applicants submit that this rejection should be reconsidered and withdrawn for the same reasons that the rejection of claims 1-4 and 6-8 based on Uenishi et al '080 alone should be reconsidered and withdrawn. The evidence of unexpectedly superior results provided in Mr. Yasunami's Declaration under 37 C.F.R. § 1.132 rebuts any prima facie case of obviousness and establishes the patentability of the present resist composition over Uenishi '080 and Ishihara et al '434.

In Paragraph No. V of the Action, claims 1-8 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Ishihara et al '434.

As an initial matter, Applicants note that Ishihara et al is prior art only under § 102(a), and not under § 102(b).

Applicants submit that this rejection should be withdrawn because Ishihara et al '434 does not disclose or render obvious the positive working resist composition of the present invention.

Applicants respectfully submit that the Examiner has not established an anticipation.

The Examiner has not pointed to a specific working example in Ishihara et al '434 which anticipates the present claims. Rather, the Examiner has reconstructed the positive working resist composition of the present invention from Ishihara et al's disclosure using hindsight.

Ishihara et al in formula [11] at page 7 and formula [12] at page 8 discloses a very broad genus of resins. The Examiner has made numerous selections to reconstruct the present invention. For example, the Examiner has required t to be a natural number, but t may be 0.

Similarly, the Examiner has chosen $R^{(18)}$ to be an alkyl group to satisfy the requirements for resin A2 in present claim 3. However, formula (3) in present claim 3 requires that Z_1 be a hydrocarbon group having from 1 to 5 carbon atoms, whereas $R^{(18)}$ in Ishihara et al '434 is an alkyl group "having generally 1 to 10 carbon atoms." Thus, the Examiner necessarily has selected only those groups having 5 carbon atoms or less.

Further, in formula [12] of Ishihara et al, the Examiner has required that r' be a natural number, when r' in formula [12] of Ishihara et al may be 0.

Still further, there is nothing in Ishihara et al '434 which suggests using, in combination, a resin satisfying the requirements for resin A1 of the present claims and a resin satisfying the requirements for resin A2 of the present claims, as required by present claim 3.

Still further, the Examiner has selected $R^{(19)}$ in formula [11] and [12] of Ishihara et al to be a hydrogen atom, apparently to meet formula (4) in present claim 6. See the first repeating unit illustrated for formula (4) at the bottom of page 22 of the present specification. In regard to claim 6, the Examiner has also required that e be a natural number other than 0, when per Ishihara et al., e may be 0.

A similar analysis could be made for present claim 7, as for claim 6.

Ishihara et al '434 simply does not disclose or fairly suggest the positive working resist composition of the present invention. To reconstruct an invention from a highly generic

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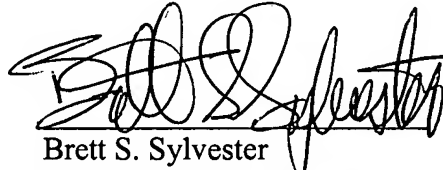
disclosure based on hindsight, as has been done in the present case, is improper and is not the appropriate test of patentability under §103. The present invention is patentable over Ishihara et al '434.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the §102 anticipation rejection of present claims 1-8 based on Ishihara '434.

Allowance is respectfully requested.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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